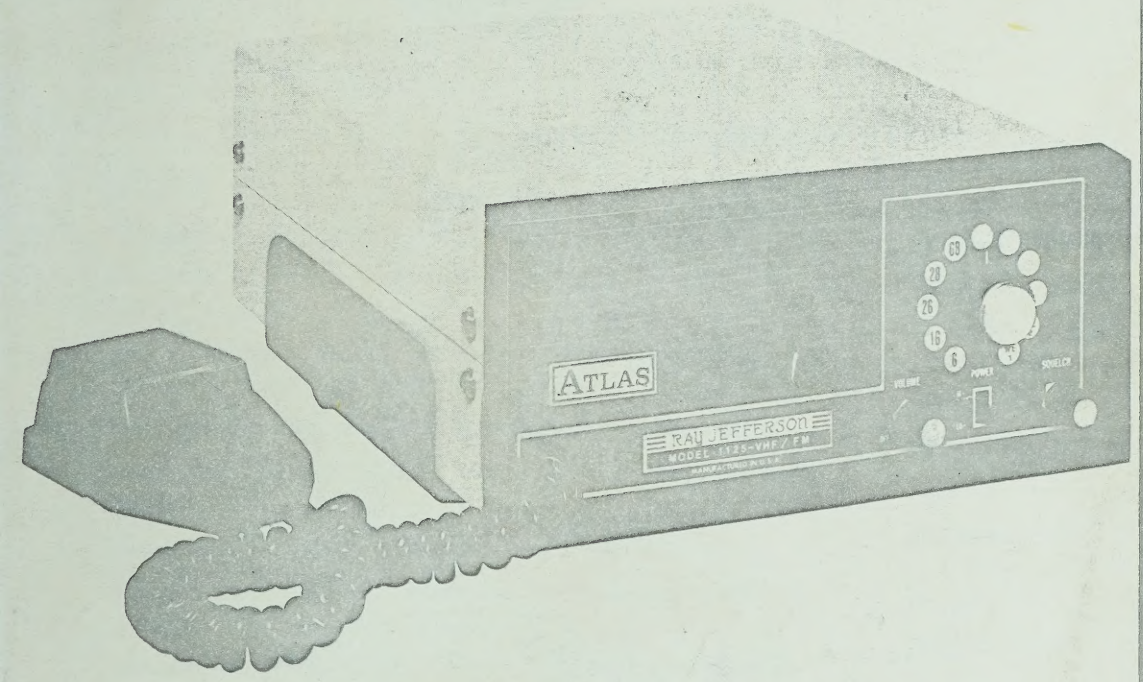
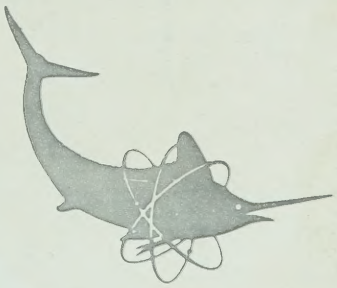
MARINE RADIO TELEPHONE MODEL 1125 "ATLAS" VHF/FM

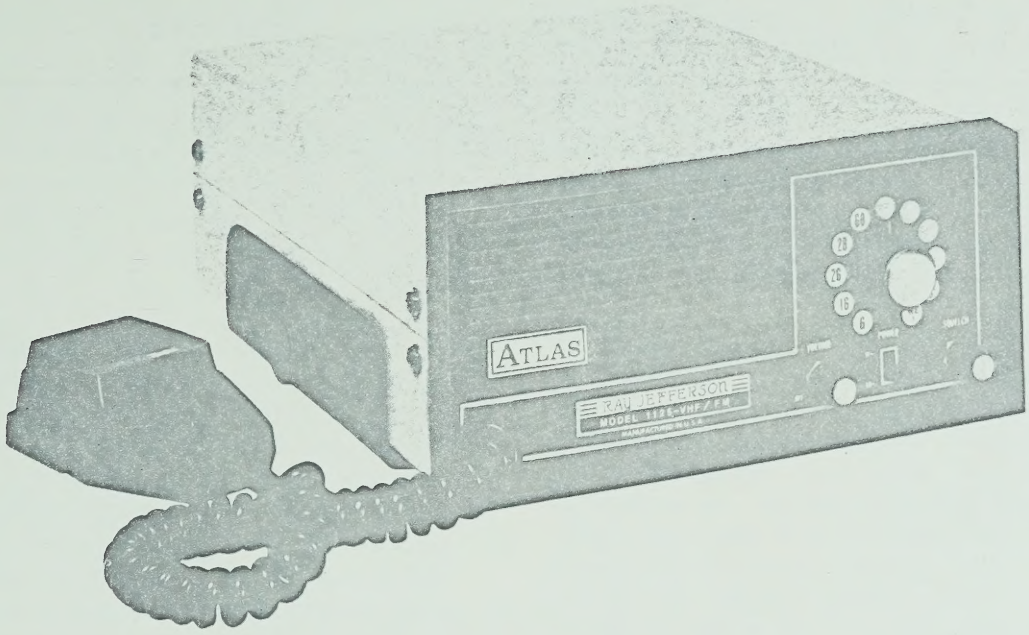




INSTRUCTION HANDBOOK

PRICE
FIVE DOLLARS

RAY JEFFERSON
PHILADELPHIA PENNSYLVANIA
DIVISION OF JETRONIC INDUSTRIES, INC.



SPECIFICATIONS AND REFERENCE DATA

TRANSMITTER

Frequency – 156.30 to 157.425 MHz

Channels: 9 crystal controlled. Channels 6, 16, 26, 28 and 68 are factory installed.

Crystal Control: Crystals are HC 25/U type – 32pf transmitter crystal frequency is multiplied 12 times.

Frequency Accuracy: .0005% with factory installed crystals.

Frequency Stability: .0005% from –30°C to +60°C with factory installed crystals.

Power Input: 54 watts maximum at 13.5 volts DC.

Power Output: 25 watts maximum. A front panel switch is provided to reduce power to one watt.

Modulation: ±5kHz (FCC Type 16F3 emission) Standard de-emphasis curve within +1db to –3db from the required 6db per octave curve covering 300-3000 Hz. A post limiter filter is employed.

Deviation Limiter: Automatic restriction of deviation to ±5kHz.

Microphone: Hand held reluctance type.

Hum and Noise Level: 50db below modulation level.

Spurious and Harmonic Attenuation: –65db.

Antenna: 3db gain white fiberglass with mounting.

Antenna Connector: VHF type S0239 – 50 ohms.

RECEIVER

11 channel double conversion superheterodyne with crystal controlled oscillator and crystal filter. Double tuned RF stage and mixer, 10.7MHz IF, 455kHz limiters with discriminator detection.

Channels: 6, 16, 26, 28, 68, W1 and W2 are factory installed.

Frequency Range: 156.30 to 162.55 MHz.

Frequency Accuracy: .001% with factory installed crystals.

Frequency Stability: .001% from –30°C to +60°C with factory installed crystals.

Sensitivity: .5μv or less for 20db quieting.

Selectivity: –6db @ ±6.5 kHz, –80db @ ± 14 kHz.

Audio Output: 4 watts maximum Class B output.

Semiconductors: Transmitter – 24 transistors and diodes.
Receiver – 41 transistors and diodes.

Dimensions: 9" wide, 4" high, 12" deep.

Weight: 5¾ lbs.

ACCESSORIES

Antenna: 5 foot 3db gain white fiberglass with mounting hardware.

Power Cord: 6 foot with molded connector (color coded).

Fuse: An 8 amp fuse is inside unit (top).

Mounting: Universal mounting bracket supplied.

Power Requirements:

Supply Voltage: 12 Volts DC – Negative Ground Only

Current Drain: Transmitter – Low Power 1 Amp
– High Power 4.7 Amps

Receiver – Squelched 0.3 Amps
– Full Power 1.25 Amps at 4 Watts Audio

MESSAGE TO THE OWNER

CONGRATULATIONS! As the new owner of a Ray Jefferson Model "1125" VHF/FM Radio Telephone, you are probably anxious to install it aboard and "try it out." However, before doing so, we strongly recommend that you read this owners manual carefully. By following these instructions, you will avoid problems and obtain the maximum efficiency from your unit.

GENERAL DESCRIPTION

The Ray Jefferson Model "1125" is the result of the latest space age research and development. The "1125" is type accepted under part 81 (land base) and part 83 (shipboard) of the FCC regulations. The "1125" is a completely solid state transistorized radio telephone and contains no tubes to heat up, draw a lot of current and burn out. Space age integrated circuits are used in the receiver section. The R.F. output transistor is protected against burn-out which can be caused by an inadvertent short or open in the antenna.

The Ray Jefferson Model "1125" factory pre-tuned package is ideal for do-it-yourselfer. Channels 6, 16, 26, 28, 68, W-1 and W-2 are pretuned and sealed at the factory. There is no need for the services of a licensed FCC technician when installing the unit as factory supplied. Simply connect the antenna and wire the set to the 12 Volt supply and you're "on the air."

NOTE: If other crystals are added. All transmitter adjustments must be made by a person holding a minimum of a second class radiotelephone license in accordance with FCC regulations, part 8.

The "1125" is a 9 channel transmit, 11 channel receive VHF (very high frequency) Radio Telephone using FM (frequency modulation). The "1125" is designed specifically for use in the 156 to 162 MHz band.

The "1125" comes complete with a 3db gain 5 foot white fiberglass universal mounting antenna.

GENERAL INFORMATION

RULES AND REQUIREMENTS

Many classes of vessels are not required by law to be equipped with radio-telephone installations. However, all radio stations aboard ships must be licensed by the Federal Communications Commission. A ship's station license is issued only by the FCC Main Office which is located in Washington, D.C. Application for a ship's station license must be made on FCC Form No. 502 which is available from any of the FCC Field Offices listed in this handbook.

Owners and operators of shipboard radio stations are also required by FCC Rule 83.367 to provide Part 83 (Rules and Regulations for Stations on Shipboard in the Maritime Services) in every shipboard station. Part 83 is contained in Volume IV of the FCC Rules and Regulations and may be obtained from the Superintendent of Documents, Washington, D.C. 20402. Applications for license should be mailed with the fee to FEDERAL COMMUNICATIONS COMMISSION, GETTYSBURG, PA. 17325.

All questions pertaining to Vessel information and Applicant information should be answered completely. Several weeks may be required to process your application and the radiotelephone may not be used until a license is posted aboard your vessel, however, an "Interim Ship Station License" can be issued to you. An Interim License may be obtained and used on your vessel while your application is being processed. Apply, in person, at any of the FCC Field Offices listed in this manual. The Interim License is usable for a period of 6 months. In Alaska only, mail application to the FCC Field Office in Anchorage.

A change of boat name no longer requires an application for modification of a radio station license. Such a change can now be legally covered by a letter to the FCC. The letter should contain the ship station call sign, the old boat name, and the new boat name and the name and address of the licensee. If the vessel is registered, also include the official registration number.

When your Ship Station License is due for renewal, the FCC will notify you prior to the expiration date on FCC Form 405-B. A portion of this Form 405-B must be completed and mailed back to the FCC, Gettysburg, Pa., accompanied by the renewal fee.

ORDER FORM

TO: Superintendent of Documents
Government Printing Office
Washington, D. C. 20402

Please enter _____ subscription(s) to Volume IV, containing Parts 81, 83 and 85 of the Federal Communications Commission Rules and Regulations. Make checks or money orders payable to the Superintendent of Documents.

Name _____

Street Address _____

City _____ State _____ Zip Code _____

The Ship's Station Operator must also have an Operator's License. This license is obtained from the FCC Field Office. Application must be made on FCC Form 753.

The licensee is responsible at all times for the lawful and proper operation of his station. Licenses are granted only to United States citizens. The license is granted primarily for safety of life and property; therefore, distress and safety communications must have absolute priority. Secondarily, however, certain frequencies, which are not reserved for safety or distress calls, may be used for radio-telephone calls to coast stations or between ships. The local telephone company or radio-telephone coast station can furnish the radio-telephone frequencies and the charges for radio-telephone service.

FCC FIELD OFFICES

Boston, Massachusetts 02109, 1600 Customhouse
New York, New York 10014, 748 Federal Building, 641 Washington Street
Philadelphia, Pennsylvania 19106, 1005 U.S. Customhouse
Baltimore, Maryland 21201, 819 Federal Bldg., 31 Hopkins Plaza
Norfolk, Virginia 23502, Military Circle 807 North Military Highway
Atlanta, Georgia 30303, 1602 Gaslight Tower, 235 Peachtree St. N.E.
Savannah, Georgia 31402, 238 Post Office Building, P.O. Box 8004
Miami, Florida 33130, Room 919, 51 S.W. First Avenue
Tampa, Florida 33602, 738 Federal Office Building, 500 Zack Street
New Orleans, Louisiana 70130, 829 Federal Office Building, 600 South Street
Mobile, Alabama 36602, 439 U.S. Courthouse and Customhouse
Houston, Texas 77002, New Federal Office Building 515 Rusk Avenue, Room 5636
Beaumont, Texas 77701, 323 Federal Building, 300 Willow St.
Dallas, Texas 75202, Room 13E7 New Federal Court House and Office Bldg. 1100 Commerce Street
Los Angeles, Calif. 90012, Room 1758, U.S. Courthouse, 312 North Spring St.
San Diego, Calif. 92101, Fox Theatre Bldg. 1245 - 7th Avenue
San Francisco, Calif. 94111, 323 - A Customhouse, 555 Battery Street
Portland, Oregon 97204, 314 Multnomah Bldg. 319 S.W. Pine Street
Seattle, Washington 98104, 8012 Federal Office Building, 1st Avenue and Marion Street
Denver, Colorado 80202, 504 New Customhouse, 19th between Calif. & Stout Sts.
St. Paul, Minnesota 55101, 691 Federal Bldg. & U.S. Courthouse, 4th & Robert St.
Kansas City, Missouri 64106, 1703 Federal Building, 601 E. 12th Street
Chicago, Illinois 60604, 1872 Everett McKinley Dirksen Bldg., 219 South Dearborn St.
Detroit, Michigan 48226, 1054 New Federal Building Wash. Blvd. & Lafayette St.
Buffalo, New York 14202, 905 Federal Building, 111 West Huron St.
Honolulu, Hawaii 96808, 502 Federal Building, P.O. Box 1021
San Juan, Puerto Rico 00903, 322-323 Federal Bldg., P.O. Box 2987
Anchorage, Alaska 99510, Room G-63 U.S. Post Office & Courthouse Bldg. 4th & G St., P.O. Box 644
Washington, D.C. 20554, Room 216, 1919 N St. N.W.

OPERATOR LICENSE

The radio-telephone transmitter in a ship station may be operated only by a licensed radio operator. The licensed operator may permit others to speak over the microphone if he starts, supervises, and ends the operation, makes the necessary log entries, and gives the necessary identification. The license usually held by radio operators aboard small vessels not required to carry a radio installation for safety purposes is the Restricted Radio Telephone Operator Permit. This lifetime permit may be obtained without examination by United States citizens in person or by mail from any Commission Field Office upon proper completion of FCC Form 753A. This permit does not authorize transmitter adjustments that may affect the proper operation of the station. Any needed adjustments must be made only by the holder of a first or second class radio-telegraph or radio-telephone license. It is not necessary to post the Restricted Radio Telephone Operator Permit if it is kept on the operator's person; however, other classes of licenses must be conspicuously posted at the principal location at which the station is operated. (Rule 83.156).

TRANSMITTERS

Each ship radio-telephone transmitter requested to be licensed in a new or renewal license under Part 83 of the Commission's Rules for operation must be type accepted under Part 83.

GOVERNMENT AND FOREIGN FREQUENCIES

A ship may transmit on frequencies not included on the ship station license when directed to do so by U.S. Government stations or foreign coast stations. (Rules 83.357 and 83.363).

PREVENTION OF INTERFERENCE

Always listen on the channel to be used before transmitting so that you will not interfere with others already using the channel. (Rule 83.181 [b]).

OPERATING PROCEDURES

You must give your call sign whenever you call another vessel or coast station and when you finish the conversation. Except when talking on the intership frequencies where the maximum time limit for a conversation is 3 minutes, you must break and announce your call sign if your ship-shore conversation lasts longer than 15 minutes. (Rules 83.364 and 83.366[g]). Make your calls short (not more than 30 seconds) and do not call that station again for 2 minutes. (Rule 83.366[f]).

SAFETY AND DISTRESS

Never forget that SAFETY is the primary reason for having shipboard radio. DISTRESS AND SAFETY must have ABSOLUTE PRIORITY. That is why you must listen, and be able to transmit, on 156.8 MHz. The distress call is "MAY-DAY." Read Rule 83.233 (b) and the other rules in Subpart J of Part 83 for complete information about distress calls and messages. If a call to the Coast Guard is needed they may be raised on channel 16 (156.8 MHZ).

RADIO CONVERSATIONS ARE PRIVATE

If you hear a radio conversation not intended for you, you cannot lawfully use the information in any way. (Rule 83.174).

VIOLATION NOTICES

If you receive an "Official Notice of Violation" from the FCC you must reply to it within ten days receipt. If you cannot give a full answer that soon, you should acknowledge it and say that you will make a full answer as soon as possible. (If you are away from your permanent mailing address, it is suggested that you make arrangements to have mail from the FCC opened, acknowledged and forwarded.)

LOGS

A radio log is required; each page must be numbered, must have the name of the vessel, call sign, and must be signed by the operator. This log is found on page 14-15. Entries shall be made showing the time of beginning and ending each watch on 156.8 MHz. All distress and alarm signals and related communications transmitted or intercepted, and all urgency and safety signals and related communications transmitted, shall be recorded in the log as completely as possible.

A record of all installations, service, or maintenance work performed, which may affect the proper operation of the station, must also be entered by the licensed operator doing the work, including his signature, address and the class, serial number and expiration date of his license. The 24 hour system is used in a radio log, that is 8:45 a.m. is written as 0845 and 1:00 p.m. becomes 1300. (Rule 83.368.)

Radio logs must be retained for at least a year; for three years if they contain entries concerning distress or disaster; and longer periods if they concern communications being investigated by the FCC, or against which claims or complaints have been filed. (Rule 83.115).

Any FCC Field Engineering Office will be glad to help you and give you any further information.

UNPACKING AND INSPECTION

Immediately upon receiving your radio-telephone, carefully unpack the contents and examine them thoroughly outside and inside for damage that may have occurred during transportation due to rough or improper handling. Report any damage immediately to the transportation company or to your authorized Ray Jefferson dealer before disposing of the packaging materials.

INSTALLATION

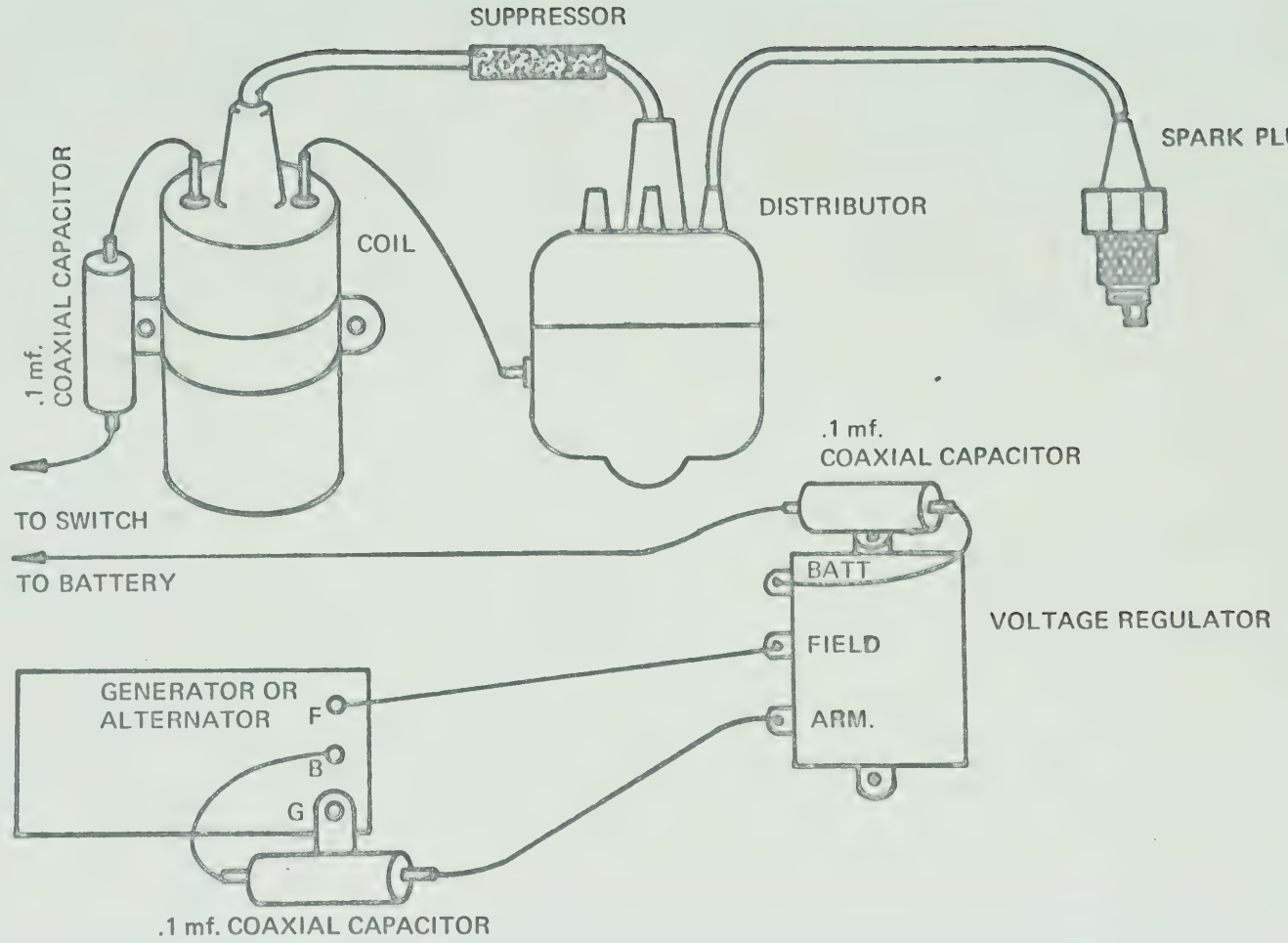
The location of the equipment aboard the boat should be chosen with the following in mind:

1. Convenience of operation.
2. Protected location (from salt spray and weather).
3. Antenna should be mounted as high on the boat as practical for greatest range. It should preferably be the highest object on the boat.

The special VHF gain antenna which is supplied should be used for best performance. It is connected to the set by means of a 50 ohm coaxial cable using a UHF plug. A Perko #424 cable outlet should be used for a watertight entry.

A mounting cradle is furnished that permits you to mount the set on a shelf or, by reversing the covers, it can be mounted on the cabin overhead. Remove thumb screws to mount cradle.

The wires from the power plug connector must be connected directly to the battery, not to switches, common terminals, ammeter or circuit breakers. If more wire is needed install a junction box and use #10 or 12 GA. for the rest of the run. The wire with the red strip is positive and the other negative. Note that the connector is polarized, one pin is larger than the other. Do not force.



In some cases, a larger capacitor is required to suppress the whining noise. 1.0 MF usually is sufficient, however in stubborn cases, a choke and condenser combination may be required.

BASIC NOISE SUPPRESSION FOR GASOLINE ENGINES — 150-175 MHz

Engine Noise Suppression: While light ignition noise interference is not as bothersome on VHF-FM as it is on other bands, noise suppression should be done even though it does not seem to be bothersome. Noise pulses chop "holes" in the received signal and weaker stations can be completely blanked out.

The following procedure for basic noise elimination will also improve reception on other radios and direction finders and provide better operation of all types of depth sounders.

Spark Plugs: On some makes of engines, Champion "U" type spark plugs (such as UJ6) are specified. We have found that it is impossible to eliminate noise caused by these plugs as they have an extra spark gap near the top of plug which causes the leads to radiate this noise. The remedy is to replace these with resistor type plugs or, better yet, use standard spark plugs with the new MSW cables. This cable looks like ordinary cable, but instead of a solid or carbonized conductor, it consists of a coiled winding of monel wire over a ferrite core which acts as an RF choke reducing the noise to a very low level. As this wire has a very low resistance compared to the usual suppressors, there is no loss in engine performance. These cables are sold in complete sets packaged for most engines and can be snapped in place in a few minutes.

Ignition Coils: Coils should be mounted on the engine. Clean away paint to insure good ground. Certain coils such as the Mallory plastic encased unit radiate excessive noise and should be replaced with a standard metal cased unit.

Voltage Regulators: Older types of regulators contain a vibrating set of contacts to control voltage. If the usual capacitors do not quiet the frying noise, replace with a solid state regulator which has no moving parts.

Tachometers: Some electrical tachometers cause considerable radiation of spark noise. This type of tach connects to the points at the distributor. Disconnect the tach wire at the distributor and note the noise reduction. This lead should be shielded or a special tach filter installed. If Sun tachs are used, all wires must be shielded and the plastic cased sender unit which contains a vibrating set of contacts should be completely shielded in a metal enclosure.

OPERATION

When your Model "1125" has been properly installed and you have made the proper entry in your ship's radio log, you may begin radio telephone communication.

OPERATING PROCEDURE

TO RECEIVE

Turn the Model "1125" power switch ON. This switch is part of the volume control. (The red pilot lamp should light indicating the receiver is on). Set the channel selector to 16. This is the channel you are required to monitor and to make your initial radio contact on. The "1125" is ready for instant reception or transmission on the selected channel since it is completely transistorized and does not require a warm-up period. Adjust the Volume control for the desired listening level and then adjust the Squelch control to a point where the audible hissing noise is just cut off. If some other station is transmitting on Channel 16, adjust the Squelch control to a point where the speech is clear but the noise between transmissions is cut out. DO NOT attempt to transmit on Channel 16 if another station is transmitting.

TO TRANSMIT

Turn the Model "1125" power switch ON. Monitor Channel 16 to be sure the channel is clear before operating your transmitter. Transmission starts the moment you depress the switch on the microphone. Depress the microphone switch and talk directly into the microphone holding it close to your mouth. The red light will get brighter when microphone switch is pressed. To receive you must release the microphone switch. The proper procedure for radio-telephone communication is given in the example below.

EXAMPLE: "Bluebird — this is Sailfish WXZ9999." When your party answers on Channel 16, "Sailfish, this is Bluebird WXX8888," switch to Channel 70 or the channel desired and continue your communication.

To alleviate congestion on Channel 16, the F.C.C. recommends that calls from the boat to all shore stations (except the Coast Guard) be made on the shore station's working frequency.

If you are attempting to contact Bridge Tenders or Lock Operators, you must operate your transmitter in the LOW Power position. LOW Power should also be used whenever possible to prevent interfering with other radio-telephone users. If it is not possible to communicate using LOW Power, switch to HIGH.

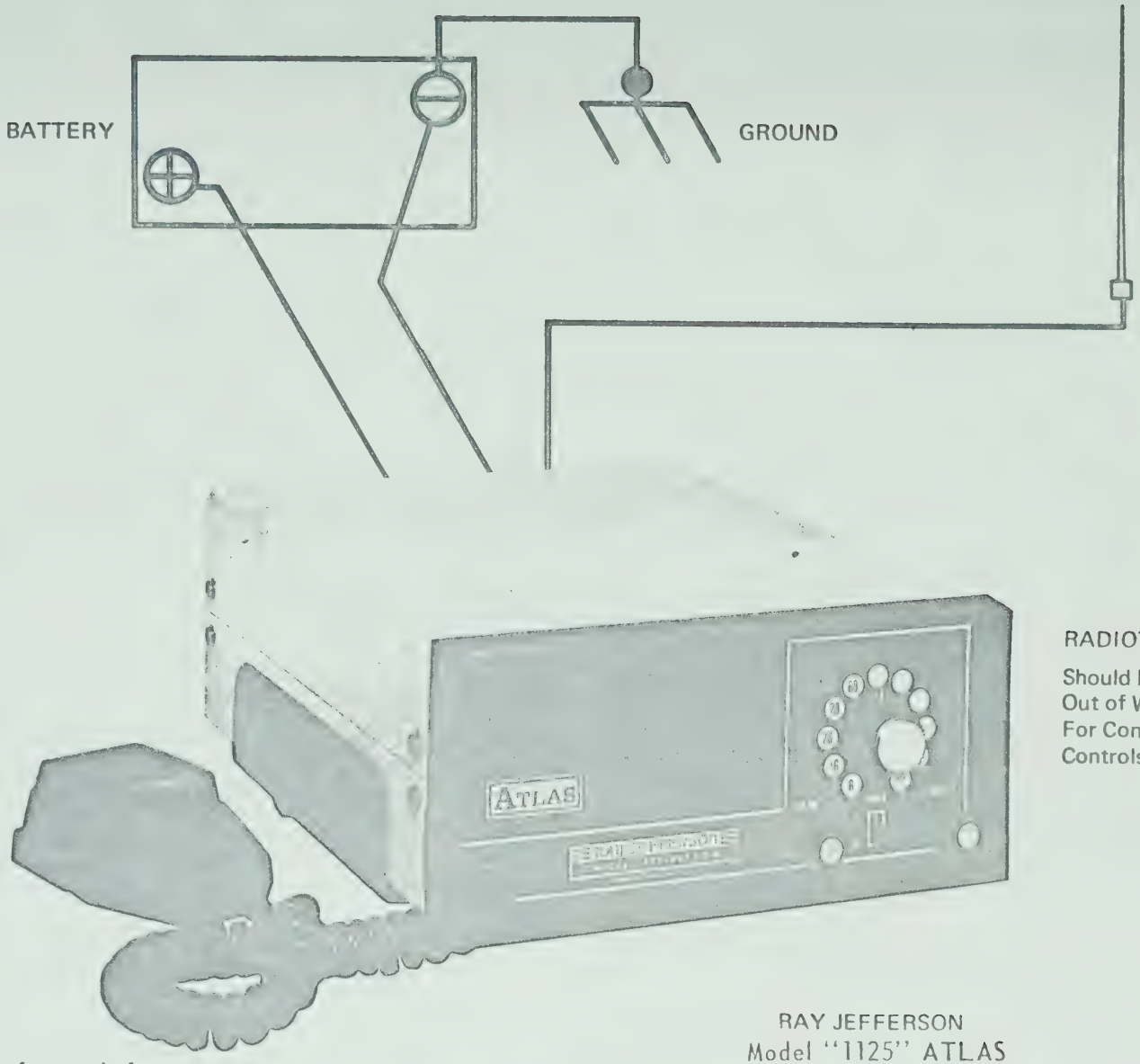
When you have completed your radio-telephone conversation, you must sign off giving your FCC assigned call sign.

EXAMPLE: "EZX9999 OVER AND OFF."

OPERATOR'S MAINTENANCE

To keep the Model "1125" in "like new" condition, wax cabinet and panel with a regular auto type wax polish. Under no circumstances, spray the inside of the unit with any type of so called protective spray as many of the component parts can be ruined and your guarantee will be voided.

Your antenna and connections should be inspected at least once a year by a competent licensed technician. The VSWR should be measured and faults corrected where necessary to insure the lowest possible VSWR to prolong the life of the transistors. FCC Regulation 83.157 requires that all transmitter maintenance must be performed by a licensed technician.



NOTE — Check installation frequently for corrosion or loose connections.

TYPICAL INSTALLATION

OPERATING FREQUENCIES

The following is a list of channels and operating frequency of each channel. Your selection of a channel should be limited to the uses specified in this list.

CHANNEL DESIGNATION	FREQUENCY (MHz)		TYPE OF TRAFFIC	FUNCTION	
	SHIP	SHORE		SHIP-TO-SHIP	SHIP-TO-SHORE
06	156.300		Safety	Yes	No
07	156.350	160.950	Int'l Only	Yes	Yes
07A	156.350	156.350	Commercial	Yes	Yes
08	156.400		Commercial	Yes	No
09	156.450	156.450	Commercial	Yes	Yes
09	156.450	156.450	Non-Commercial	No	Yes
10	156.500	156.500	Commercial	Yes	Yes
11	156.550	156.550	Commercial	Yes	Yes
12	156.600	156.600	Port Operations	Yes	Yes
12	156.600	156.600	Coast Guard Working	No	Yes
13	156.650	156.650	Navigational	Yes	Yes
14	156.700	156.700	Port Operations	Yes	Yes
15	156.750	156.750	Weather Pending	Receive Only	Receive Only
16	156.800	156.800	Safety and Calling	Yes	Yes
17	156.850	156.850	State Control	No	Yes
18	156.900	161.500	Int'l Only	Yes	Yes
18A	156.900	156.900	Commercial	Yes	Yes
19	156.950	161.550	Int'l Only	Yes	Yes
19A	156.950	156.950	Commercial	Yes	Yes
20	157.000	161.600	Port Operations	No	Yes
21CG	157.050	157.050	Coast Guard	Yes	Yes
22CG	157.100	157.100	Coast Guard	Yes	Yes
23CG	157.150	157.150	Coast Guard	Yes	Yes
24	157.200	161.800	Public Correspondence	No	Yes
25	157.250	161.850	Public Correspondence	No	Yes
26	157.300	161.900	Public Correspondence	No	Yes
27	157.350	161.950	Public Correspondence	No	Yes
28	157.400	162.000	Public Correspondence	No	Yes
65	156.275	160.875	Int'l Only	Yes	Yes
65A	156.275	156.275	Port Operations	Yes	Yes
66	156.325	160.925	Int'l Only	Yes	Yes
66A	156.325	156.325	Port Operations	Yes	Yes
67	156.375		Commercial	Yes	No
68	156.425	156.425	Non-Commercial	Yes	Yes
69	156.475	156.475	Non-Commercial	No	Yes
70	156.525		Non-Commercial	Yes	No
71	156.575	156.575	Non-Commercial (Marinas)	No	Yes
72	156.625		Non-Commercial	Yes	No
73	156.675	156.675	Port Operations	Yes	Yes
74	156.725	156.725	Port Operations	Yes	Yes
77	156.875		Commercial	Yes	No
78	156.925	161.525	Int'l Only	Yes	Yes
78A	156.925	156.925	Non-Commercial	No	Yes
79	156.975	161.575	Int'l Only	Yes	Yes
79A	156.975	156.975	Commercial	Yes	Yes
80	157.025	161.625	Int'l Only	Yes	Yes
80A	157.025	157.025	Commercial	No	Yes
81	157.075	157.075	Coast Guard Aux.	Yes	Yes
83CG	157.175	157.175	Coast Guard Aux.	Yes	Yes
84	157.225	161.825	Public Correspondence	No	Yes
85	157.275	161.875	Public Correspondence	No	Yes
86	157.325	161.925	Public Correspondence	No	Yes
87	157.375	161.975	Public Correspondence	No	Yes
88	157.425	162.025	Int'l Only	Yes	Yes
88A	157.425		Commercial Fishing	Yes	No
WE_1		162.550	NOAA Weather	Receive Only	Receive Only
WE_2		162.400	NOAA Weather	Receive Only	Receive Only

NOTE: *The letter A after certain channel numbers denotes simplex operation in the United States. Int'l. denotes duplex useage in International Service and is not used in the United States.*

CHANNEL NUMBER	RECEIVER WORKING FREQ.	RECEIVER CRYSTAL FREQ.	CHANNEL NUMBER	TRANSMITTER WORKING FREQ.	TRANSMITTER CRYSTAL FREQ.
06	156.300	48.53333	06	156.300	13.02500
07	160.950	50.08333	07	156.350	13.02916
07A	156.350	48.55000	07A	156.350	13.02916
08	156.400	48.56666	08	156.400	13.03333
09	156.450	48.58333	09	156.450	13.03750
10	156.500	48.60000	10	156.500	13.04166
11	156.550	48.61666	11	156.550	13.04583
12	156.600	48.63333	12	156.600	13.05000
13	156.650	48.65000	13	156.650	13.05416
14	156.700	48.66666	14	156.700	13.05833
15	156.750	48.68333	15	156.750	13.06250
16	156.800	48.70000	16	156.800	13.06666
17	156.850	48.71666	17	156.850	13.07083
18	161.500	50.26666	18	156.900	13.07500
18A	156.900	48.73333	18A	156.900	13.07500
19	161.550	50.28333	19	156.950	13.07916
19A	156.950	48.75000	19A	156.950	13.07916
20	161.600	50.30000	20	157.000	13.08333
21	157.050	48.78333	21	157.050	13.08750
22	157.100	48.80000	22	157.100	13.09166
23	157.150	48.81666	23	157.150	13.09583
24	161.800	50.36666	24	157.200	13.10000
25	161.850	50.38333	25	157.250	13.10416
26	161.900	50.40000	26	157.300	13.10833
27	161.950	50.41666	27	157.350	13.11250
28	162.000	50.43333	28	157.400	13.11666
65	160.875	50.05833	65	156.275	13.02292
65A	156.275	48.52500	65A	156.275	13.02292
66	160.925	50.07500	66	156.325	13.02708
66A	156.325	48.54166	66A	156.325	13.02708
67	156.375	48.55833	67	156.375	13.03125
68	156.425	48.57500	68	156.425	13.03542
69	156.475	48.59166	69	156.475	13.03959
70	156.525	48.60833	70	156.525	13.04375
71	156.575	48.62500	71	156.575	13.04792
72	156.625	48.64166	72	156.625	13.05208
73	156.675	48.65833	73	156.675	13.05625
74	156.725	48.67500	74	156.725	13.06042
77	156.875	48.72500	77	156.875	13.07292
78	161.525	50.27555	78	156.925	13.07708
78A	156.925	48.74166	78A	156.925	13.07708
79	161.575	50.29166	79	156.975	13.08125
79A	156.975	48.75833	79A	156.975	13.08125
80	161.625	50.30833	80	157.025	13.08542
80A	157.025	48.77500	80A	157.025	13.08542
81	157.075	48.79166	81	157.075	13.08958
83	157.175	48.82500	83	157.175	13.09791
84	161.825	50.37500	84	157.225	13.10208
85	161.875	50.39166	85	157.275	13.10625
86	161.925	50.40833	86	157.325	13.11042
87	161.975	50.42500	87	157.375	13.11458
88	162.025	50.44166	88	157.425	13.11875
88A	157.425	48.90833	88A	157.425	13.11875
WE-1	162.550	50.61666	WE-1		
WE-2	162.400	50.56666	WE-2		

OPERATING LIMITATIONS

Ship's station operators should try to limit their conversations so as not to inconvenience other operators. Consult the FCC Rules and Regulations for information pertaining to operating time limitations, procedures for safety and distress calls, response to violation notices and other requirements for ship-board radio-telephone stations.

TECHNICIAN MAINTENANCE: TRANSMITTER ADJUSTMENTS

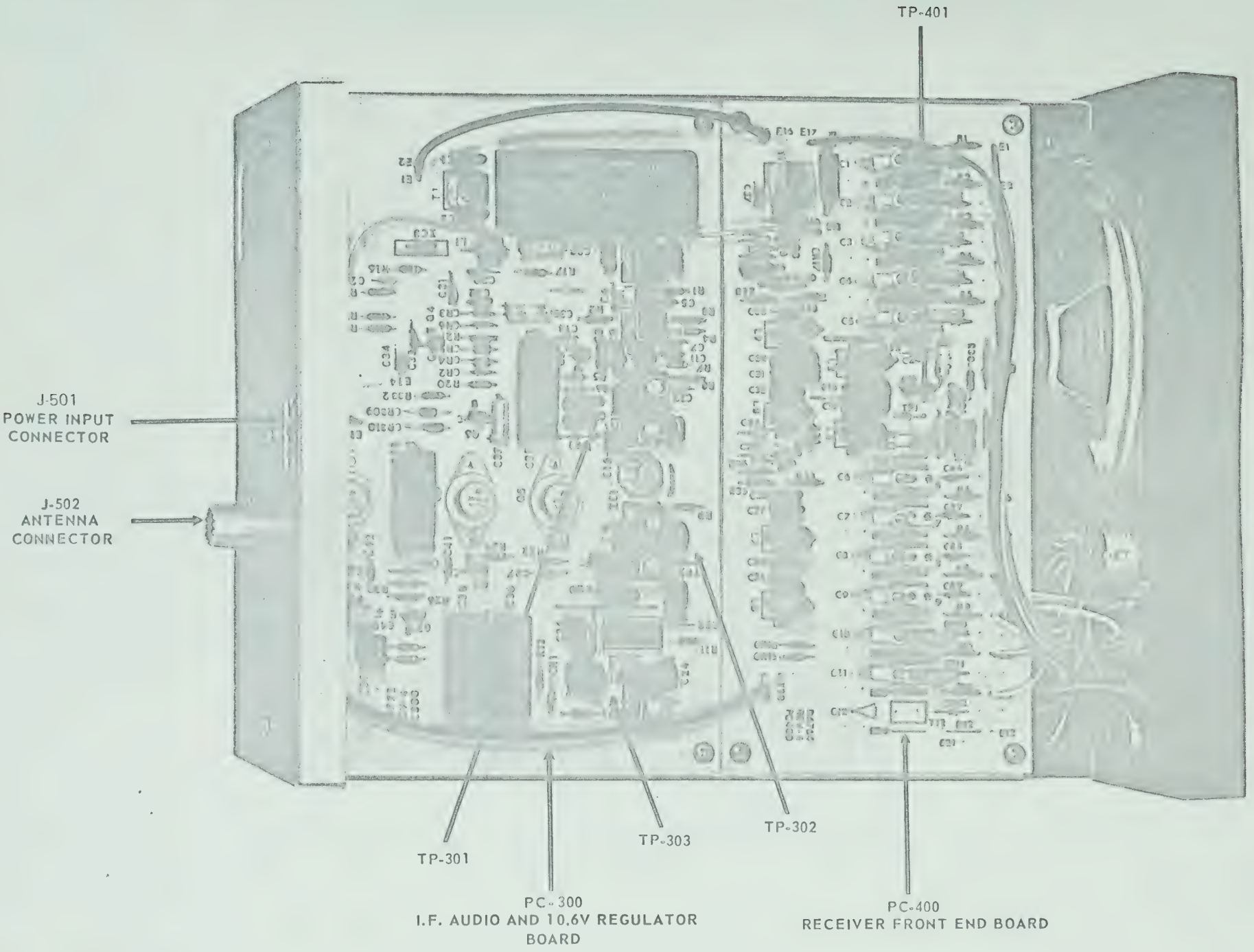
1. Set power switch to "Hi" power.
2. Connect 50 ohm load - wattmeter (25 watts) to the antenna connector.
3. Turn unit on by rotating volume control clockwise. Red front panel light will go on.
4. Set channel selector switch to Channel 16.
5. Set Vacuum Tube voltmeter to +5 VDC scale. Connect negative lead to chassis ground and positive lead to TP-101.
   Note: Do not leave transmitter keyed too long during tune up. (30 sec. on 60 sec. off is OK.)
6. Key transmitter and adjust L-101 and L-102 for a maximum indication. (1 - 2 volts).
7. Move positive lead of VTVM to TP-102.
8. Key transmitter and adjust L-103 and L-104 for a maximum indication. (.5 - 1 volt).
9. Move positive lead of VTVM to TP-303
10. Key transmitter and adjust L-106 and L-107 for a maximum indication. Adjust L-109 for a minimum indication. (1 - 2 volts).
11. Remove VTVM.
12. Observe 50 ohm 25 wattmeter.
13. Key transmitter and adjust L-110, C-202 and C-217 for for maximum output (25 watts).
14. Key transmitter and using a frequency meter set C-113-C-121 (depending on Channel used) to the exact frequency, such as Channel 6T, 156,300,000 HZ.

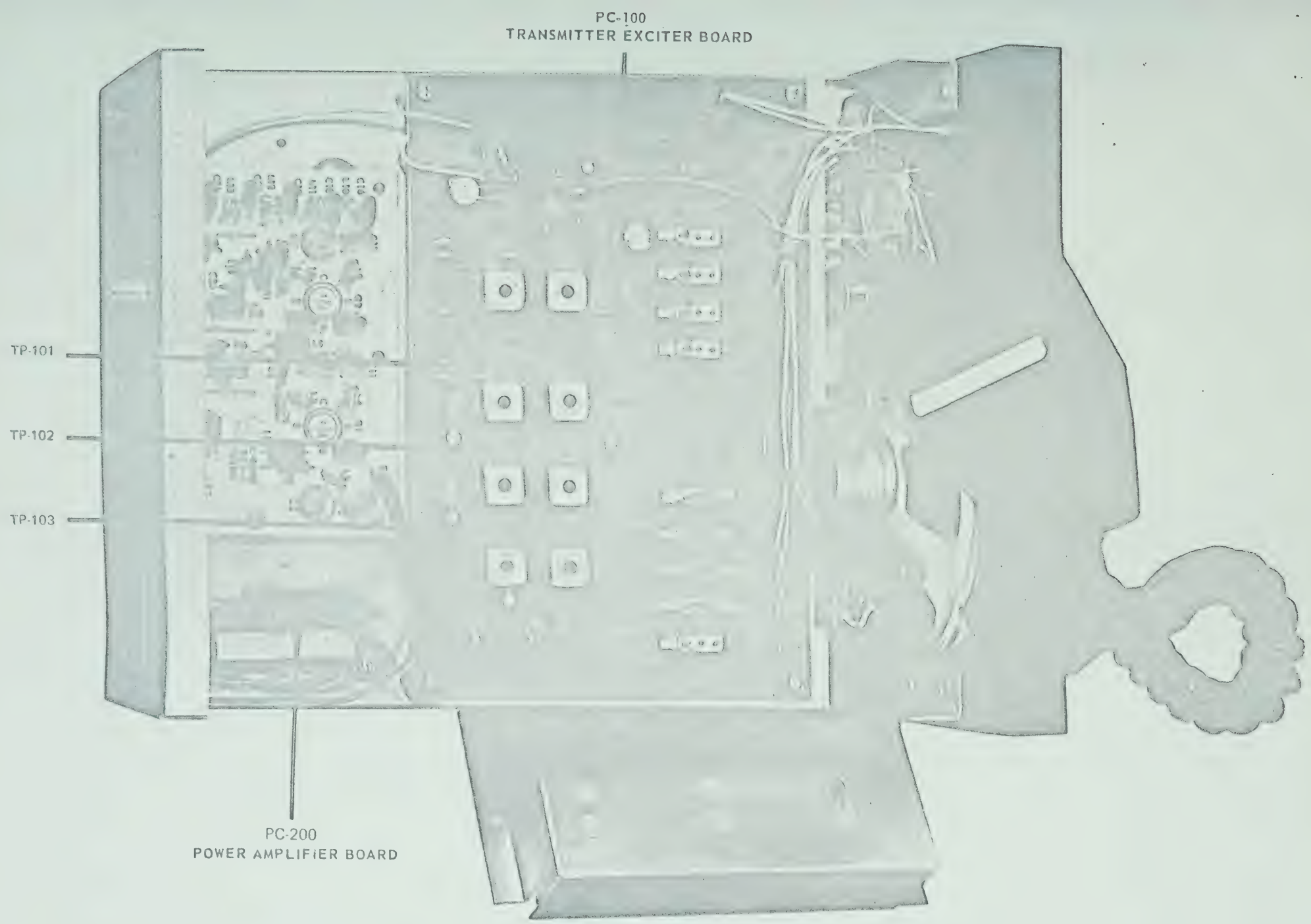
DEVIATION ADJUSTMENT

1. Connect an audio generator and an A.C. VTVM to the red wire from the microphone and ground.
2. Set audio osc. to 400 Hz.
3. Adjust level of audio osc. to .1 VRMS.
4. Key transmitter and adjust deviation control (R-149) for 4.5KHz as indicated on deviation monitor.

RECEIVER ALIGNMENT

1. Turn on unit and connect an electronic counter to TP-401 and set C-401-C411 (Depending on channel used) to the exact crystal frequency such as channel 6R 48, 53333 KHz.
2. Turn unit on and connect a 50 ohm signal generator to the antenna terminal.
3. Set generator to 156.8 MHz and unit to Channel 16.
4. Connect scope to TP-301 and ground.
5. Adjust L-402, L-403, L-406, L-407, L-408, L-409, T-401, T-301, T-302, T-303, T-304 and T-305 for maximum output.
6. Move scope probe to TP-302.
7. Adjust T-306 and T-307 for maximum output.
8. Move scope probe to TP-303.
9. Adjust T-308 for maximum output.


TP-401
J-501
POWER INPUT
CONNECTOR
J-502
ANTENNA
CONNECTOR
TP-301
TP-303
TP-302
PC-300
I.F. AUDIO AND 10.6V REGULATOR
BOARD
PC-400
RECEIVER FRONT END BOARD


PC-100
TRANSMITTER EXCITER BOARD
TP-101
TP-102
TP-103
PC-200
POWER AMPLIFIER BOARD

RADIO LOG

RAY JEFFERSON MODEL "1125" VHF–FM RADIOTELEPHONE

Date of Installation 6-12-75 Time 1260 EDST

TRANSMITTER FREQUENCY MEASUREMENTS

CHANNEL SERVICE		FREQUENCY	ERROR	DEVIATION KHz
6		156,300	+200	5
16		156,800	-100	(
26		157,300	+300	
28		157,400	+200	
68		156,425	-100	)
14		156,700		
22		157,100		
70		156,525		
W-1	✓			
W-2	✓			

EQUIPMENT USED TO MEASURE: Cushman CE-3 with Model 303 Plug in

MODULATION DEVIATION: Cushman CE-3 with Model 301 Plug in

TECHNICIAN DONALD E. CARPENTER

LICENSE NO. AND EXPIRATION DATE P1-3-11060 EXPIRES 8/15/78

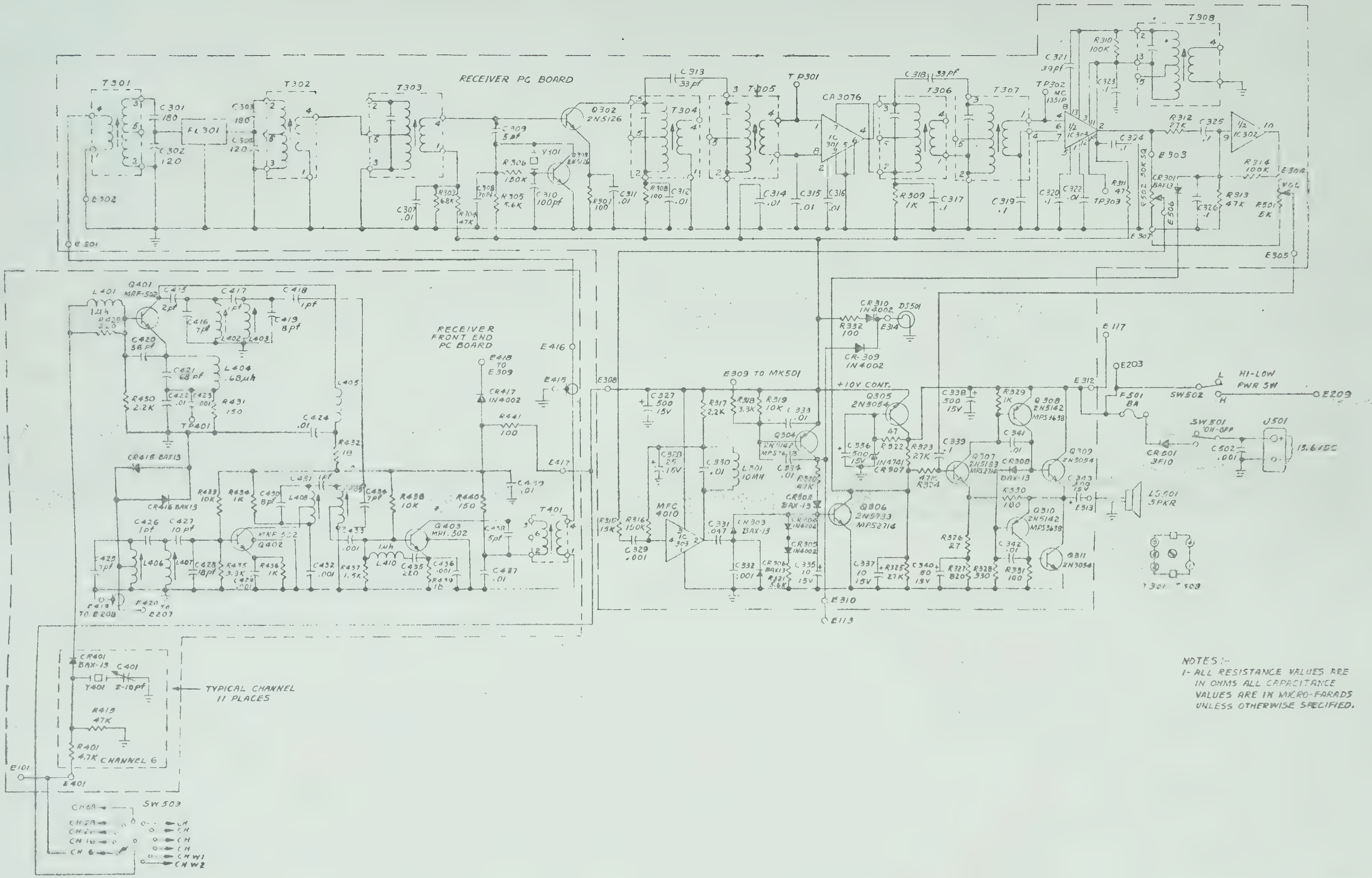
D Carpenter

SERIAL NO. E! 04646

RADIO LOG

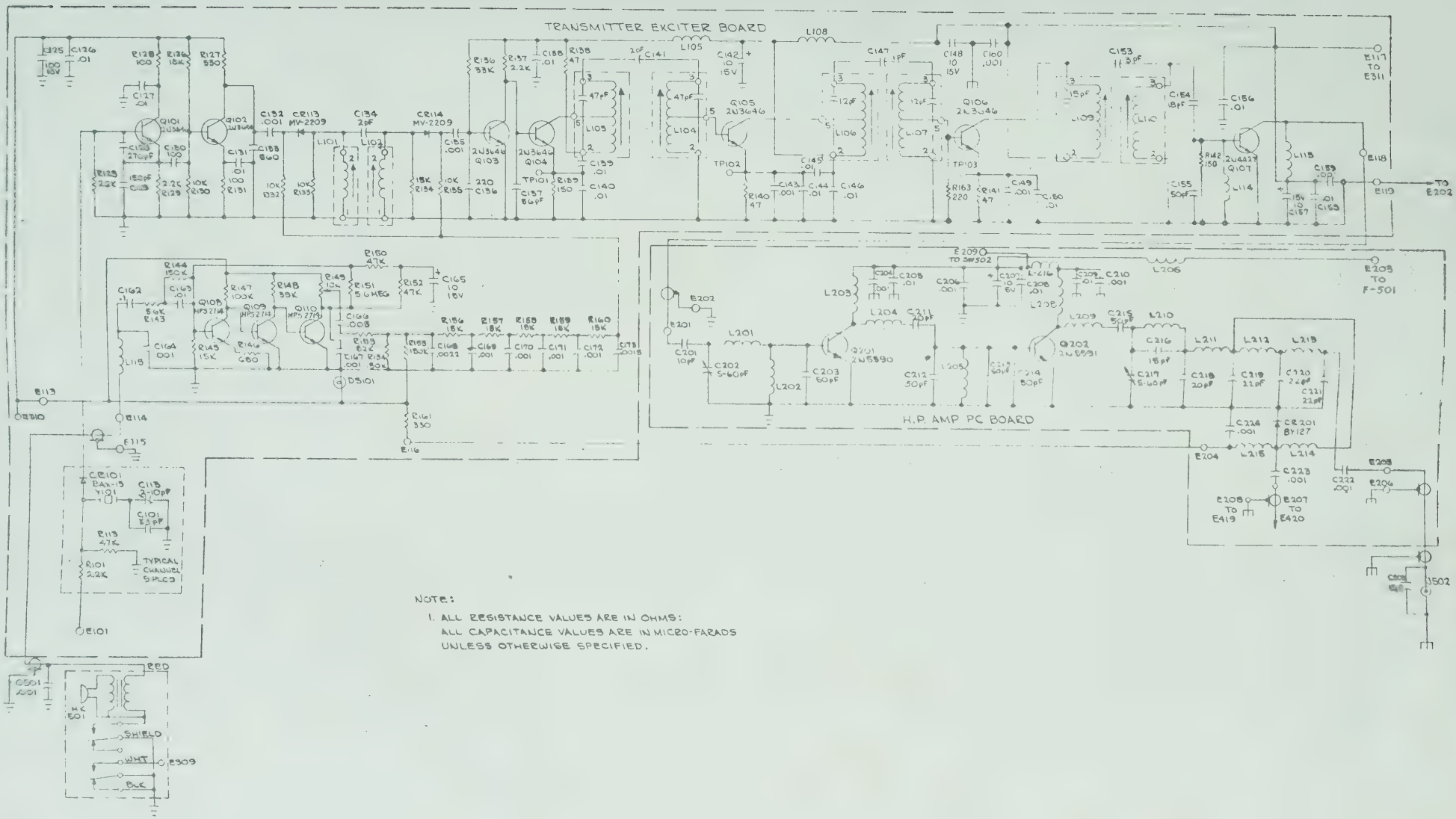
Page________ Name of Vessel________________ Call Letters________ Operator________________

	CHAN. 16 WATCH				
DATE	START	STOP	LOCATION	DISTRESS TRAFFIC	SERVICE WORK PERFORMED



NOTES :-
1- ALL RESISTANCE VALUES ARE IN OHMS ALL CAPACITANCE VALUES ARE IN MICRO-FARADS UNLESS OTHERWISE SPECIFIED.

RECEIVER SCHEMATIC
MODEL "1125" VHF/FM



TRANSMITTER SCHEMATIC
MODEL "1125" VHF/FM

SEMICONDUCTOR DC VOLTAGE CHART

All voltages are positive in respect to ground except where noted.

TRANSISTOR	BASE	EMITTER	COLLECTOR	CONDITION
Q-101	4.90	4.40	10.6	
Q-102	2.15	1.60	3.60	
Q-103	0.48	0	1.75	
Q-104	1.20	1.30	12.5	
Q-105	0	.70	13.6	
Q-106	0	1.4	13.6	
Q-107	0	0	13.6	
Q-108	0.63	0.10	0.56	
Q-109	0.56	0	0.59	
Q-110	0.59	0	4.60	
Q-201	DO NOT MEASURE			
Q-202	DO NOT MEASURE			
Q-302	1.40	0.73	10.0	REC.
Q-303	-0.7	0	5.4	REC.
Q-304	10.4	10.4	0	REC.
Q-304	9.0	10.4	10.4	TRANS.
Q-305	11.0	10.4	13.6	REC. & TRANS.
Q-306	0.3	0	6.75	UNSQ
Q-306	0.6	0	0.12	SQ
Q-307	6.0	5.20	13.0	UNSQ
Q-307	0.17	0	13.6	SQ
Q-308	13.0	13.6	7.0	UNSQ
Q-308	13.6	13.6	0	SQ
Q-309	7.0	6.5	13.6	UNSQ
Q-309	0	0	13.6	SQ
Q-310	6.3	6.5	7.0	UNSQ
Q-310	0	0	0	SQ
Q-311	0.3	0	6.5	UNSQ
Q-311	0	0	0	SQ
Q-401	3.0	2.35	9.50	REC.
Q-402	2.64	1.90	8.70	REC.
Q-403	1.40	0.79	10.4	REC.

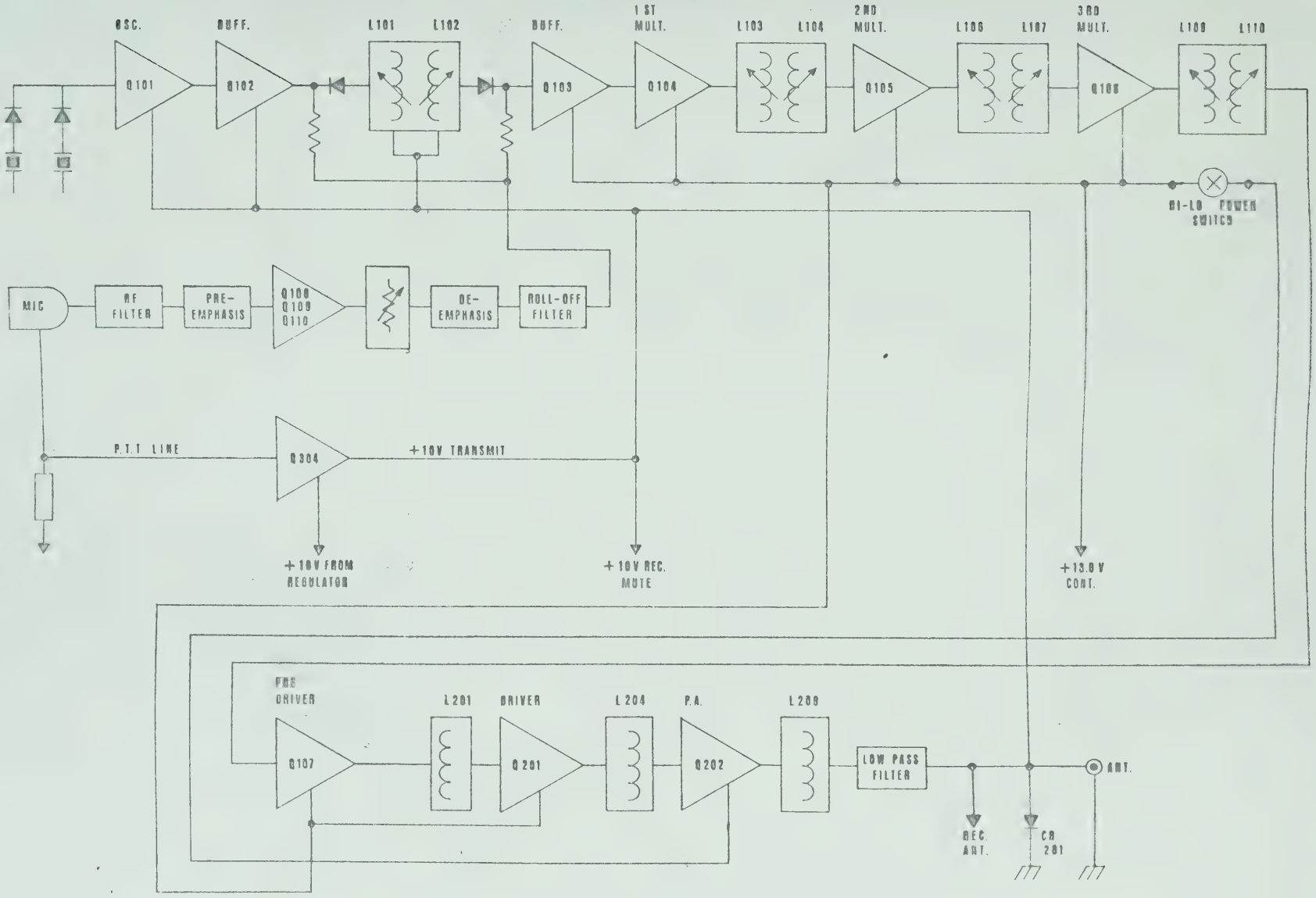
IC-301
1 - 2.3
2 - 2.3
3 - 0
4 - 9.3
5 - 0
6 - 0
7 - 9.3
8 - 2.3

IC-302

SQ	UNSQ
1 - 6.65	6.65
2 - 5.90	5.90
3 - 4.40	4.40
4 - 2.20	2.20
5 - 2.15	2.15
6 - 2.20	2.20
7 - 0	0
8 - 0.80	0.80
9 - .6 to .8	1.35
10 - 9.40	4.30
11 - 4.40	4.40
12 - 3.70	3.70
13 - 4.40	4.40
14 - 10.0	10.0

IC-303
1 - 0
2 - 5.8
3 - 10.6
4 - 0.73

TRANSMITTER BLOCK DIAGRAM



C-101 thru C-109,313,318	Capacitor, Fixed, Duramica 33pf ±10%
C-113 thru C-121	Capacitor, Variable, Piston
C-401 thru C-411	2-10pf
C-125	Capacitor, Fixed Miniature Aluminum Elect. 100MFD 15V
C-126,127,131 138,139,140 144,145,146 150,156,158 163,205,208 209,307,311 312,314,315 316,322,333 334,341,342 422,424,437 439	Capacitor, Fixed, Ceramic .01MFD +80 -20% 100V
C-128	Capacitor, Fixed, Duramica 270pf ±10%
C-129	Capacitor, Fixed, Duramica 150pf ±10%
C-130, 310	Capacitor, Fixed, Duramica 100pf ±10%
C-132,135,143 149,159,160 164,167,169 thru 172,204, 206,210,222 223,224,329 423,429,432 433,436,501 502,	Capacitor, Fixed, Ceramic .001MFD GMV 100V
C-133	Capacitor, Fixed, Duramica 560pf ±10%
C-134,141,415	Capacitor, Fixed, Duramica 2pf ±.5pf
C-136	Capacitor, Fixed, Duramica 220pf ±10%
C-137,420	Capacitor, Fixed, Duramica 56pf ± 5%
C-142, 148 157, 165	Capacitor, Fixed, Miniature Aluminum Elect. 10MFD 15V
C-147, 417, 418 426, 431	Capacitor, Fixed, Duramica 1pf ±.5pf
C-153	Capacitor, Fixed, Duramica 3pf ±.5pf
C-154	Capacitor, Fixed, Duramica 18pf ±10%
C-155	Capacitor, Fixed, Duramica 50pf ±10%
C-162,317 319, 320 323, 324 325, 339	Capacitor, Fixed, Poly-Film .1MFD ±20% 100V
C-166	Capacitor, Fixed, Poly-Film .0047MFD ±20% 100V
C-168	Capacitor, Fixed, Poly-Film .0022MFD ±10% 100V
C-173	Capacitor, Fixed, Poly-Film .0015MFD ±10% 100V
C-201,427	Capacitor, Fixed, Duramica 10pf ±5%
C-202,217	Capacitor, Variable, Miniature Trimmer 5-60pf
C-203,212,213 214, 215	Capacitor, Fixed, Duramica 50pf ±5%
C-207,335,337	Capacitor, Fixed, Miniature Aluminum Elect. 10MFD 15V
C-211, 218	Capacitor, Fixed, Duramica 20pf ±5%
C-216, 503	Capacitor, Fixed, Duramica 15pf ±5%

C-219, 220 221	Capacitor, Fixed, Duramica 22pf ±5%
C-301, 303	Capacitor, Fixed, Duramica 180 pf ±10%
C-302, 304	Capacitor, Fixed, Duramica 120pf ±10%
C-308	Capacitor, Fixed, Duramica 20pf ±10%
C-309, 438	Capacitor, Fixed, Duramica 5pf ±.5pf
C-326, 331	Capacitor, Fixed, Poly-Film .047MFD ±20% 100V
C-321	Capacitor, Fixed, Duramica 39pf ±10%
C-327, 336 338, 343	Capacitor, Fixed, Miniature Aluminum Elect. 500MFD 15V
C-328	Capacitor, Fixed, Miniature Aluminum Elect. 25MFD 15V
C-330	Capacitor, Fixed, Ceramic .01MFD ±20% 100V
C-332	Capacitor, Fixed, Ceramic .001MFD ±20% 100V
C-340	Capacitor, Fixed, Miniature Aluminum Elect. 50MFD 15V
C-416, 425 434	Capacitor, Fixed, Duramica 7pf ±.5pf
C-419, 430	Capacitor, Fixed, Duramica 8pf ±.5pf
C-428	Capacitor, Fixed, Duramica 18pf ±5%
C-435	Capacitor, Fixed, Duramica 220pf ±5%
CR-101 thru 109, 301 302, 303 306, 308 401 thru 411, 415 416	Diode, BAX-13
CR-113, 114	Diode, 1N3182 or MV2209
CR-201	Diode, BY-127
CR-304, 305 309, 310 417	Diode, 1N4002
CR-307	Diode, 1N4741A
CR-501	Diode, 3F10
DS-101, 501	Lamp & Holder 12VDC L12/60
F-501	Fuse 8AMPS 3AG
XF-501	Fuse Holder, B-8750-2
FL-301	Crystal Filter, 001-22140
J-501	Receptacle, B8719-1
J-502	Coax Connector, SO-239
LC-501	Power Cord B-9283-1
LS-501	Speaker, 4ohms C-5095
MK-501	Microphone, C-4937
XMK-501A	Escutcheon, B-9245
XMK-501B	Hanger Mike, B-9066-1
SW-502	Hi-Lo Power Switch SPST G-123
SW-503	Channel Selector Switch, B-9031

L-101, 102	Coil, B-9131-1
L-103	Coil, B-9132-1
L-104	Coil, B-9133-1
L-105, 108 113, 114 115, 206 215, 216 405	Coil Ferrox Cube #VK200-19/4B
L-106	Coil, B-9134-1
L-107	Coil, B-9135-1
L-109	Coil, B-9136-1
L-110	Coil, B-9137-1
L-201, 203 208, 210	Coil. A-10866-1
L-202, 205	Coil, Ferrox Cube VK-211-17/4B
L-204, 209	Coil, A-10866-3
L-211 thru 214	Coil, A-10866-2
L-301	10MH RF Choke No. 70F102A1
L-401, 410	1uh RF Choke No. 9310-12
L-402, 403 407	Coil No. 01871-BA2
L-404	Coil 0.68uh RF Choke No. 9310-08
L-406	Coil No. 01871-BA1
L-408, 409	Coil No. 01871-BA5
Q-101 thru 106	Transistor, 2N3646 or MPS-3646
Q-107	Transistor, 2N4427 Motorola only
Q-108, 109 110, 306 307	Transistor, 2N5133 or MPS2714
Q-201	Transistor, 2N5590
Q-202	Transistor, 2N5591
Q-302, 303	Transistor, 2N5126
Q-304, 308 310	Transistor, 2N5142 or MPS-3638
Q-305, 309 311	Transistor, 2N3054
Q-401, 402 403	Transistor, MRF-502
QIC-301	I.C. CA-3076
QIC-302	I.C. MC-1351P
QIC-303	MFC-4010A
R-101 thru 109, 128 129, 137 317, 430	Resistor, Fixed, Comp. 2.2Kohm ±10% 1/4W
R-113 thru 121, 150 152, 304 313, 320 324, 415 thru 425	Resistor, Fixed, Comp. 47Kohm ±10% 1/4W
R-125, 131 307, 308 331, 332	Resistor, Fixed, Comp. 100ohm ±10% 1/4W
R-432	Resistor, Fixed, Comp. 18ohm ± 10% 1/4 W
R-126	Resistor, Fixed, Comp. 18Kohm ±10% 1/4W
R-127, 161 328	Resistor, Fixed, Comp. 330ohm ±10% 1/4W

R-130, 132 133, 135 319, 433 438	Resistor, Fixed, Comp. 10K ohm ±10% 1/4W
R-134, 145 315	Resistor, Fixed, Comp. 15K ohm ±10% 1/4W
R-136	Resistor, Fixed, Comp. 33K ohm ±10% 1/4W
R-138, 140 141, 311 322	Resistor, Fixed, Comp. 47 ohm ±10% 1/4W
R-139, 142 431, 440	Resistor, Fixed, Comp. 150 ohm±10% 1/4W
R-143, 305 321	Resistor, Fixed, Comp. 5.6K ohm ±10% 1/4W
R-144, 154 155, 306 316	Resistor, Fixed, Comp. 150K ohm ±10% 1/4W
R-146	Resistor, Fixed, Comp. 680 ohm ±10% 1/4W
R-147, 310 314	Resistor, Fixed, Comp. 100K ohm ±10% 1/4W
R-148	Resistor, Fixed, Comp. 39K ohm ±10% 1/4W
R-149	Resistor, Variable, 10K ohm 2322-410-433-07
R-151	Resistor, Fixed, Comp. 5.6Meg ohm ±10% 1/2W
R-153	Resistor, Fixed, Comp. 82K ohm ±10% 1/4W
R-156 thru 160	Resistor, Fixed, Comp. 15K ±5% 1/4W
R-163, 429	Resistor, Fixed, Comp. 220 ohm ±10% 1/4W
R-303	Resistor, Fixed, Comp. 6.8K ohm ±10% 1/4W
R-309, 329, 434 436, 439	Resistor, Fixed, Comp. 1K ohm ±10% 1/4W
R-312, 323 325	Resistor, Fixed, Comp. 27K ohm ±10% 1/4W
R-318, 435	Resistor, Fixed, Comp. 3.3K ohm ±10% 1/4W
R-326	Resistor, Fixed, Comp. 27 ohm ±10% 1/4W
R-327	Resistor, Fixed, Comp. 820 ohm ±10% 1/4W
R-330	Resistor, Fixed, Comp. 180 ohm ±10% 1/4W
R-401 thru 411	Resistor, Fixed, Comp. 4.7K ohm ±10% 1/4W
R-432	Resistor, Fixed, Comp. 18 ohm ± 10% ¼W
R-437	Resistor, Fixed, Comp. 1.5K ohm ±10% 1/4W
R-441	Resistor, Fixed, Comp. 100 ohm ±10% 1W
R-501	Resistor, Variable, B-8833
R-502	Resistor, Variable, B-9030
T-301, 302	Transformer, 10.7MHZ I.F. No. KAC-6184A (Remove cap. from base)
T-303, 401	Transformer, 10.7MHZ I.F. No. 6184A
T-304 thru 308	Transformer, 455KHZ I.F. No. YOC-15000A
Y-301	Crystal 2nd I.F. 10.245MHZ Tol. & Stability .001% 32PF HC-25u holder

Y-101	Crystal Transmit A-10870-6
Y-102	Crystal Transmit A-10870-16
Y-103	Crystal Transmit A-10870-26
Y-104	Crystal Transmit A-10870-28
Y-105	Crystal Transmit A-10870-68
Y-401	Crystal Receive A-10871-6
Y-402	Crystal Receive A-10871-16
Y-403	Crystal Receive A-10871-26
Y-404	Crystal Receive A-10871-28
Y-405	Crystal Receive A-10871-68
Y-410	Crystal Receive A-10871-W-1
Y-411	Crystal Receive A-10871-W-2

RAY JEFFERSON GUARANTEE

This unit is fully covered by our standard warranty. It will give you dependable service and long life under normal conditions encountered in marine use. The standard warranty is as follows:

Components: Ray Jefferson warrants every component of the equipment, with the exception of transistors, to be free from any defects caused by poor workmanship or faulty materials. Under the warranty, Ray Jefferson is liable only to the repair, or, at Ray Jefferson option, the replacement, without charge, of any component found to be defective under normal use within 1 year of the date of Ray Jefferson shipment, if the following conditions are met:

(1) Ray Jefferson must be promptly notified, in writing, upon discovery of any such defects;

(2) The defective components must be returned to Ray Jefferson, transportation prepaid; and

(3) Ray Jefferson examination must disclose to its satisfaction that defects have not been caused by abuse.

Warranty is voided unless registration card is returned to the factory within 10 days after purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons or service stations in any way so as, in our judgment to affect their stability or reliability, or which have been subjected to misuse, negligence, or accident, or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products which have been connected, installed, or adjusted otherwise than in accordance with the instructions furnished by us. Accessories not manufactured by us are not covered by the warranty. No equipment manufactured by Ray Jefferson is warranted in any respect if it has been repaired or altered other than at authorized service agencies.

This warranty is in lieu of all other warranties expressed or implied and no representatives or persons are authorized to assume for us any other liability in connection with the sale of our products.

CONSEQUENTIAL DAMAGE:

Ray Jefferson shall not be held liable for any damage of a special or consequential nature with respect to merchandise sold or delivered, or service rendered.

Ray Jefferson reserves the right to perform modifications or improvements on its products without incurring obligation to install the changes on previously sold equipment.

RAY JEFFERSON
DIVISION OF JETRONIC INDUSTRIES, INC.

MAIN & COTTON STREETS PHILADELPHIA, PA. 19127

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